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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/660,888	09/12/2003	Mohamad El-Batal	LSI.81US01 (03-1078)	6950
24319	7590	02/05/2009	EXAMINER	
LSI CORPORATION 1621 BARBER LANE MS: D-105 MILPITAS, CA 95035			CHERY, MARDOCHEE	
			ART UNIT	PAPER NUMBER
			2188	
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			02/05/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/660,888	Applicant(s) EL-BATAL ET AL.	
	Examiner MARDOCHEE CHERY	Art Unit 2188	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 November 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11/20/08 has been entered.

Response to Amendment

2. In response to the last Office action, claims 1, 9, and 17 have been amended.

Response to Arguments

3. Applicant's arguments with respect to claims 1, 9, and 17 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

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1. Determining the scope and contents of the prior art.
 2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
5. Claims rejected under 35 U.S.C. 103(a) as being unpatentable over Ofek (6,549,921) and Kamvysselis (6,640,280).

As per claim 1, Ofek discloses a method for recovering data in a redundant data storage system having a plurality of data storage units [Fig. 1, col. 14, lines 38-46], said method comprising: storing said data on said plurality of data storage units according to a redundant data storage method [col. 14, lines 38-46]; removing one of said plurality of data storage units for a period [col. 14, lines 48-49]; starting a delta log concurrent with said step of removing one of said plurality of data storage units [col. 14, lines 50-67]; changing a portion of said data on the remainder of said plurality of data storage units during the period when one of said plurality of data storage units is removed in accordance with the redundant data storage method [col. 14, lines 59-64]; storing a record of said changes in said delta log during the when one of said plurality of data storage units is removed [col. 14, lines 59-64]; replacing said one of said plurality of data storage units [col. 14, lines 59-64]; and updating said one of said plurality of data storage units [col. 14, lines 59-64].

Ofek does not explicitly disclose the delta log is separate from said plurality of data storage units.

Kamvysselis, however, discloses the delta log is separate from said plurality of data storage units [col. 1, lines 50-57].

Thus, it would have been obvious to one of ordinary skill in the art at the time of invention by applicant to modify the system of Ofek to include the delta log being separate from said plurality of data storage units so that if a disaster occurs that renders the first storage device inoperable, a host may resume operation using the data of the second storage device (col. 1, lines 40-46).

As per claim 9, Ofek discloses a redundant data storage system capable of fast restoration of serviced data storage units [Fig. 1] comprising: a plurality of data storage units [Fig. 1, *Storage devices 15, 16, 42,43*]; a delta log [col. 14, lines 50-67]; and a controller that stores data on said plurality of data storage units according to a redundant data storage method [Fig. 1, *controllers 31, 34*], changes a portion of said data after taking one of said plurality of said data storage units off line [col. 18, lines 1-7], stores a record of the changes in a delta log that are made to the remainder of the plurality of said data storage units [col. 18, lines 5-7], brings said one of said plurality of said data storage units online, and updates said one of said plurality of said data storage units by updating those portions of data recorded in said delta file [col. 18, 13-19].

Ofek does not explicitly disclose the delta log is separate from said plurality of data storage units.

Kamvysselis, however, discloses the delta log is separate from said plurality of data storage units [col. 1, lines 50-57].

Thus, it would have been obvious to one of ordinary skill in the art at the time of invention by applicant to modify the system of Ofek to include the delta log being

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separate from said plurality of data storage units so that if a disaster occurs that renders the first storage device inoperable, a host may resume operation using the data of the second storage device (col. 1, lines 40-46).

As per claim 17, Ofek discloses a redundant data storage system capable of fast restoration of serviced data storage units [Fig. 1] comprising: a first means for storing data [Fig. 1, *Storage devices 15, 16, 42,43*]; and a second means that stores data on said first means according to a redundant data storage method [Fig. 1, *controllers 31, 34*], changes a portion of said data after taking one of said first means off line for a period [col. 18, lines 1-7], stores a record of the changes in a third means that are made to the remainder of the plurality of said data storage units [col. 18, lines 5-7], brings said one of said first means online, and updates said one of said first means by updating those portions of data recorded in said third means [col. 18, 13-19].

Ofek does not explicitly disclose a third means separate from said first means.

Kamvysselis, however, discloses a third means separate from said first means [col. 1, lines 50-57].

Thus, it would have been obvious to one of ordinary skill in the art at the time of invention by applicant to modify the system of Ofek to include a third means separate from said first means so that if a disaster occurs that renders the first storage device inoperable, a host may resume operation using the data of the second storage device (col. 1, lines 40-46).

As per claims 2, 10 and 18, Ofek discloses the redundant data storage method comprises RAID 1 [col.1, line 35-45].

As per claims 3, 11 and 19, Ofek discloses redundant data storage method comprises RAID 3 [col. 1, lines 35-45].

As per claims 4, 12 and 20, Ofek discloses redundant data storage method comprises RAID 5 [col. 1, lines 35-45].

As per claims 5, 13 and 21, Ofek discloses the redundant data storage method comprises remotely mirroring the data [col. 1, lines 36-45].

As per claims 6, 14 and 22, Ofek discloses the one of said data storage units comprises a plurality of disk drives [col. 3, lines 44-48].

As per claims 7, 15 and 23, Ofek discloses delta file comprises pointers to said portion of said data that is changed [col. 14, lines 50-64].

As per claims 8, 16 and 24, Ofek discloses the delta file comprises an updated version of the portion of the data that is changed [col. 18, lines 12-19].

Conclusion

6. When responding to the office action, Applicant is advised to clearly point out the patentable novelty that he or she thinks the claims present in view of the state of the art disclosed by references cited or the objections made. He or she must also show how the amendments avoid such references or objections. See 37 C.F.R. 1.111(c).

7. When responding to the Office action, Applicant is advised to clearly point out where support, with reference to page, line numbers, and figures, is found for any amendment made to the claims.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mardochee Chery whose telephone number is (571) 272-4246. The examiner can normally be reached on 8:30A-5:00P.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hyung Sough can be reached on (571) 272-6799. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

February 2, 2009

/M.C./

Mardochee Chery
Examiner
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